

CLAIMS

What is claimed is:

1. A method for producing a sheet for a laminate product comprising the steps of:
coating a first side of a kraft paper sheet with a release agent, said release agent remaining substantially on a surface of said first side leaving a second side of said kraft paper sheet uncoated by said release agent and said kraft paper sheet substantially unpenetrated by said release agent; and
coating an opposite side of said kraft paper sheet and penetrating said kraft paper sheet with phenolic resin.
2. The method of claim 1 wherein said release agent is sodium alginate.
3. The method of claim 1 wherein said first coating step comprises the step of:
engaging said kraft paper with a first coater to coat said first side of said kraft paper with a controlled amount of said release agent.
4. The method of claim 3 wherein said first coating step further comprises the step of:
engaging said kraft paper with a first metering device to remove from said first side an amount of said release agent determined to leave a desired amount of said release agent on said first side, and to further maintain said release agent substantially on said surface of said first side of said kraft paper.
5. The method of claim 3 wherein said second coating step comprises the step of:
engaging said kraft paper with a second coater to apply a controlled amount of said phenolic resin to said opposite side of said kraft paper.
6. The method of claim 5 wherein said second coating step further comprises the step of:
engaging said kraft paper with a second metering device to remove from said opposite side an amount of said phenolic resin determined to provide a desired level of penetration of said kraft paper by said phenolic resin from a remaining portion of said controlled amount of said phenolic resin on said second side.

7. The method of claim 6, further comprising the step of:
adjusting a period said kraft paper engages said first coater, as well as a period said kraft paper engages said second coater, for application of said release agent substantially to said surface of said first side of said kraft paper and penetration of said phenolic resin into said kraft paper.
8. The method of claim 1, further comprising the step of:
exposing said kraft paper to a conditioning unit to contemporaneously condition said release agent and said phenolic resin.
9. The method of claim 8 wherein said exposing step comprises the step of:
adjusting a period said kraft paper is exposed to a conditioning unit to allow proper conditioning of said release agent and said phenolic resin by said conditioning unit.
10. The method of claim 8 wherein said adjusting step comprises the step of:
controlling a first conditioning attribute during said exposure to maintain said release agent substantially on said first surface of said kraft paper.
11. The method of claim 10 wherein said first conditioning attribute is selected from the group consisting of:
temperature;
pressure;
a catalyst; and
moisture level.
12. The method of claim 8 wherein said exposing step further comprises the step of:
controlling a second conditioning attribute during said exposure to prevent seepage of said phenolic resin onto said first surface of said kraft paper.
13. The method of claim 8 wherein said exposing step further comprises the step of:
controlling a conditioning attribute during said exposure to control penetration of said phenolic resin into said kraft paper

14. The method of claim 13 wherein said conditioning attribute is selected from the group consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

15. The method of claim 8 wherein said exposing step further comprises the step of: controlling a conditioning attribute during said exposure to substantially prevent seepage of said release agent into said kraft paper.

16. The method of claim 15 wherein said conditioning attribute is selected from the group consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

17. The method of claim 8 wherein said exposing step comprises the step of: controlling a rate at which said kraft paper is exposed to said conditioning unit; and maintaining a conditioning attribute of said conditioning unit to control penetration of said phenolic resin into said kraft paper, and maintaining said desired amount of said release agent substantially on said surface of said first side of said kraft paper, wherein said conditioning attribute is selected from the group consisting of:

temperature;
pressure;
a catalyst; and
moisture level.

18. The method of claim 8 wherein said conditioning unit is selected from the group consisting of an oven, a refrigeration device, a wetting device, and a drying device.

19. The method of claim 1, further comprising the step of:
determining an amount of said release agent to be applied to said first side of said first kraft paper to allow a desired amount of said phenolic resin to penetrate said kraft paper.

20. The method of claim 19, further comprising the step of:
determining an amount of said phenolic resin to be applied to said second side of said first kraft paper to penetrate said kraft paper without adversely affecting said release agent by contaminating said release agent.

21. The method of claim 19, further comprising the step of:
determining an amount of said phenolic resin to be applied to said second side of said first kraft paper to penetrate said kraft paper without adversely affecting said release agent by repelling said release agent.

22. The method of claim 1, further comprising:
determining a ratio of said release agent and said phenolic resin to be applied to said kraft paper to allow a suitable release of said first surface from another surface when processed and to prevent said phenolic resin from seeping through to said first surface of said kraft paper.

23. The method of claim 22 wherein said ratio of said release agent and said phenolic resin to be applied to said first and second sides respectively of said first kraft paper is approximately 1:2.

24. The method of claim 1 wherein said release agent is applied to said first side before said phenolic resin is applied to said second side to prevent said phenolic resin from penetrating said kraft paper beyond a desired level.

25. The method of claim 1 wherein said release agent is applied to said first side before said phenolic resin is applied to said second side to prevent said phenolic resin from impregnating said kraft paper and repel said release agent when applied.

26. The method of claim 1 wherein said phenolic resin provides mechanical bonding with a sheet of laminate material to be included in said laminate product and said release agent provides release characteristics from a second laminate product.

27. A method for manufacturing a sheet for a laminate product, comprising the steps of:

coating a first surface of a sheet of kraft paper with a release agent, said release agent remaining substantially on said first surface of said kraft paper and providing release characteristics to said sheet; and

coating a second surface of said sheet with a phenolic resin penetrating into said kraft paper, said phenolic resin providing bonding characteristics for bonding said sheet with another sheet of laminate material to be included in said laminate product.

28. The method of claim 27 wherein said release agent is sodium alginate.

29. The method of claim 27, further comprising the step of:

determining an amount of said release agent to be applied to said first surface of said first kraft paper to allow a desired amount of said phenolic resin to be absorbed by said kraft paper.

30. The method of claim 29, further comprising the step of:

determining an amount of said phenolic resin to be applied to said second surface of said first kraft paper to saturate at least a portion of said kraft paper without adversely affecting said release agent.

31. A system for double sided coating a kraft paper sheet for use in the manufacture of a laminate product, comprising:

a first coater, wherein said first coater contains a release agent providing release characteristics desirable during said manufacture of said laminate product, and wherein said first coater is adapted for coating a first surface of said kraft paper sheet with said release agent;

a first metering device adapted to remove a portion of said release agent from said first surface of said kraft paper sheet to thereby provide a precisely controlled amount of said release agent on said first surface;

a second coater containing phenolic resin, said phenolic resin providing bonding characteristics desirable during said manufacture of said laminate product, and wherein said second coater is adapted for coating a second surface of said kraft paper sheet with said phenolic resin;

a second metering device for removing a portion of said phenolic resin from said second surface of said kraft paper sheet to thereby provide a precisely controlled amount of said phenolic resin on said second surface for penetration into said kraft paper sheet; and

means for curing said coated kraft paper sheet under controlled conditions to provide simultaneous curing of both said release agent and said phenolic resin.

32. The system of claim 31 wherein said release agent is sodium alginate.

33. The system of claim 31, further comprising:

means for controlling a curing attribute of said means for curing to maintain said release agent substantially on said first surface of said kraft paper sheet.

34. The system of claim 31, further comprising:

means for controlling a curing attribute of said means for curing to prevent said phenolic resin from seeping through to said first surface of said kraft paper sheet.

35. The system of claim 31 wherein said phenolic resin is applied to said second surface after said release agent is applied to said first surface of said kraft paper sheet to prevent said phenolic resin from saturating said kraft paper sheet and thereby preventing said release agent from remaining substantially on said first surface of said kraft paper sheet.

36. A kraft paper sheet used in manufacturing a laminate product, comprising:
a first surface coated with a release agent, providing release characteristics desirable in manufacturing said laminate product and maintained substantially on said first surface of said kraft paper sheet; and
a second surface coated with phenolic resin providing bonding characteristics during said manufacturing of said laminate product, said phenolic resin penetrating said kraft paper sheet up to a desired level.

37. The kraft paper sheet of claim 36 wherein said release agent is sodium alginate.

38. The kraft paper sheet of claim 36 wherein said kraft paper sheet is positioned adjacent to at least a second kraft paper sheet with said second surface of said kraft paper sheet in contact with said second kraft paper sheet forming a first laminate assembly, wherein said first laminate assembly is positioned adjacent to a second laminate assembly such that said first surface of said kraft paper sheet is adjacent to a release agent coated surface of said second laminate assembly, and wherein said first and second laminate assembly combination is exposed to high pressure and the treated first laminate assembly is separable from the treated second laminate assembly.